IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Withdrawn) An apparatus for sensing remote load voltages, comprising:
a power converter; and
a plurality of remote loads, each remote load located in a respective feedback loop connected to the power converter;
a first one of said feedback loops being connected to and physically adjacent to the power converter, and a second one of said feedback loops being in parallel with said first loop;
said second loop path being connected to one of said remote loads; and
said first loop, unlike said second loop, not being directly connected to any of said remote loads, and having a faster response than said second loop.

2. (Withdrawn) The apparatus of Claim 1, wherein the first path further includes a low-pass filter.

3. (Withdrawn) The apparatus of Claim 1, wherein the first path further includes a high-pass filter.

4. (Withdrawn) The apparatus of Claim 1, wherein the first path further includes a band-pass filter.

5. (Withdrawn) The apparatus of Claim 1, further comprising an error amplifier connected to both said feedback loops.

6. (Previously Amended) An apparatus for sensing remote load voltages, comprising:

a power converter;

a plurality of remote loads, each remote load located in a loop connected to the power converter;

a feedback loop connected to the power converter, the feedback loop being physically adjacent to the power converter, wherein the feedback loop further comprises a first path and a second path, and the first path and the second path are in parallel; and

an error amplifier connected to the feedback loop;

wherein the error amplifier has a gain defined by

Gav= (N * Ka) * (weighted average individual loop gains), wherein;

Gav is the average gain of the error amplifier,

N is the number of loops, and

Ka is a constant gain adjustment factor.

7. (Previously Amended) The apparatus of Claim 6, wherein the first path further comprises a capacitor-resistor network.

8. (Withdrawn) A method for sensing remote load voltages comprising the steps of:

connecting a remote load to a loop to a power converter;

devising an impedance for a feedback loop according to a weighted factor for the feedback loop; and

connecting an additional feedback loop to the power converter, wherein the additional feedback loop is physically closer to the power converter than the remote load; and

wherein the weighted factor is a desired relative feedback loop gain.

9. (Cancelled).

10. (Withdrawn) An apparatus for sensing remote load voltages, comprising:

a power converter;

a plurality of feedback loops, each respective feedback loop having a specified loop impedance relative to a desired loop gain and connected to an output terminal of the power converter at one end;

a plurality of loads, each load situated in a respective feedback loop at a specified distance from the power converter; and

an error amplifier;

a first one of said plurality of feedback loops including a remote load,

a second one of said plurality of feedback loops being in parallel with said first loop and being physically adjacent to said controller;

said second one of said plurality of feedback loops being directly connected to a summing node input of the error amplifier.

11. (Withdrawn) The apparatus of Claim 10, wherein the plurality of loads include at least one of a nearby load, a remote load, a converter terminal voltage and an inductor terminal voltage.

12. (Withdrawn) The apparatus of Claim 10, wherein the error amplifier includes a gain compensation network having an impedance, Z_f.

13. (Currently Amended) An apparatus for sensing remote load voltages, comprising:

a power converter;

a plurality of feedback loops, each respective feedback loop having a specified loop impedance relative to a desired loop gain and connected to an output terminal of the power converter at one end;

a plurality of loads, each load situated in a respective feedback loop at a specified distance from the power converter;

an error amplifier, including

a first one of said plurality of feedback loops including a remote load,

a second one of said plurality of feedback loops being in parallel with said first loop and being physically adjacent to said controller; said second one of said plurality of feedback loops being directly connected to a summing node input of the error amplifier;

[[The apparatus of Claim 10,]] wherein each load has a critical voltage point and the error amplifier has an output equal to a sum of a plurality of critical voltage points times the gain of each feedback loop to and including the error amplifier, the error amplifier output being defined by $E0=Zf(i1+i2+i3+..+iN)$,

wherein Zf is the impedance of a gain compensation network of the error amplifier,

i is the current flowing through a feedback loop, and

N represents the number feedback loops.

14. (Currently Amended) An apparatus for sensing remote load voltages, comprising:

a power converter;

a plurality of feedback loops, each respective feedback loop having a specified loop impedance relative to a desired loop gain and connected to an output terminal of the power converter at one end;

a plurality of loads, each load situated in a respective feedback loop at a specified distance from the power converter;

an error amplifier, including

a first one of said plurality of feedback loops including a remote load,

a second one of said plurality of feedback loops being in parallel with said first loop and being physically adjacent to said controller; said second one of said plurality of feedback loops being directly connected to a summing node input of the error amplifier;

[[The apparatus of Claim 10,]] wherein the error amplifier has a gain defined by

Gav= (N * Ka) * (weighted average individual loop gains), wherein

Gav is the average gain of the error amplifier,

N is the number of loops, and

Ka is a constant gain adjustment factor.

15. (Withdrawn) A method of sensing a remote voltage in a power converter system, comprising:

determining the importance of a plurality of critical points in the system;

determining an impedance for each of a plurality of feedback loops in the system based on the determined importance of each of the plurality of critical points;

setting the impedance for each feedback loop; and

monitoring a voltage at each critical point from a summing node of an error amplifier.

16. (Withdrawn) The method of Claim 12, wherein each feedback loop has at least one critical point.

17. (Withdrawn) The method of Claim 12, wherein the critical point comprises one or more of a remote load, a nearby load, a converter terminal voltage, and an inductor terminal voltage.

18. (Withdrawn) The method of Claim 12, wherein the impedance is set using a resistor-capacitor network.

19. (Withdrawn) The method of Claim 12, wherein the determining an impedance comprises first determining a desired relative gain of each feedback loop.

20. (Withdrawn) The method of Claim 12, wherein setting the impedance for each feedback loop comprising configuring a specific feedback loop response.

21. (New) The apparatus of Claim 6, wherein the first path further includes a low-pass filter.

22. (New) The apparatus of Claim 6, wherein the first path further includes a high-pass filter.

23. (New) The apparatus of Claim 6, wherein the first path further includes a band-pass filter.

24. (New) The apparatus of Claim 13, wherein the plurality of loads include at least one of a nearby load, a remote load, a converter terminal voltage and an inductor terminal voltage.

25. (New) The apparatus of Claim 13, wherein the critical voltage point comprises one or more of a remote load, a nearby load, a converter terminal voltage, and an inductor terminal voltage.

26. (New) The method of Claim 13, wherein the impedance is set using a resistor-capacitor network.

27. (New) The method of Claim 13, wherein the impedance comprises a desired relative gain of each feedback loop.

28. (New) The method of Claim 13, wherein the impedance for each feedback loop comprises configuring a specific feedback loop response.

29. (New) The method of Claim 13, wherein each feedback loop has at least one critical point.

30. (New) The method of Claim 29, wherein the critical point comprises one or more of a remote load, a nearby load, a converter terminal voltage, and an inductor terminal voltage.

31. (New) The apparatus of Claim 14, wherein the plurality of loads include at least one of a nearby load, a remote load, a converter terminal voltage, and or inductor terminal voltage.

32. (New) The method of Claim 14, wherein the impedance is set using a resistor-capacitor network.

33. (New) The method of Claim 14, wherein the impedance comprises a desired relative gain of each feedback loop.

34. (New) The method of Claim 14, wherein the impedance for each feedback loop comprises configuring a specific feedback loop response.

35. (New) The method of Claim 14, wherein each feedback loop has at least one critical point.

36. (New) The method of Claim 35, wherein the critical point comprises one or more of a remote load, a nearby load, a converter terminal voltage, or an inductor terminal voltage.